

March 8, 1932.

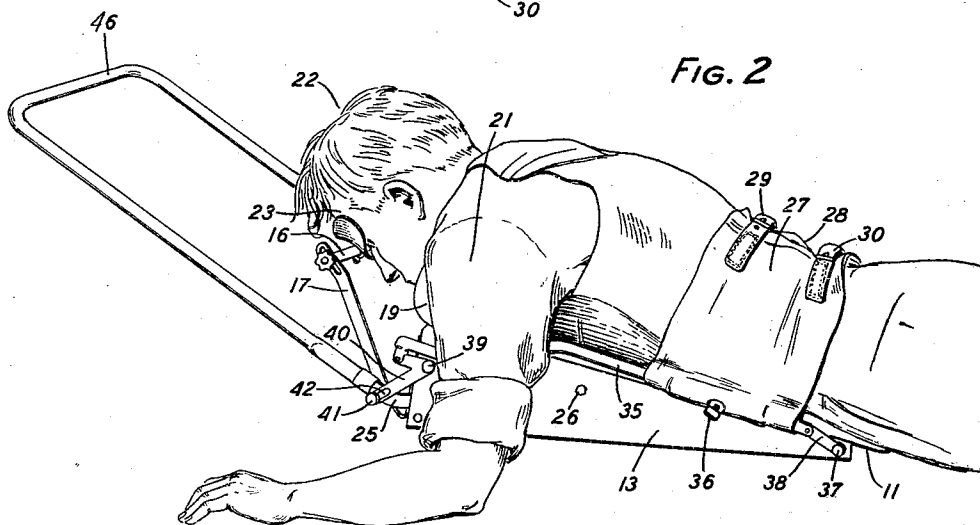
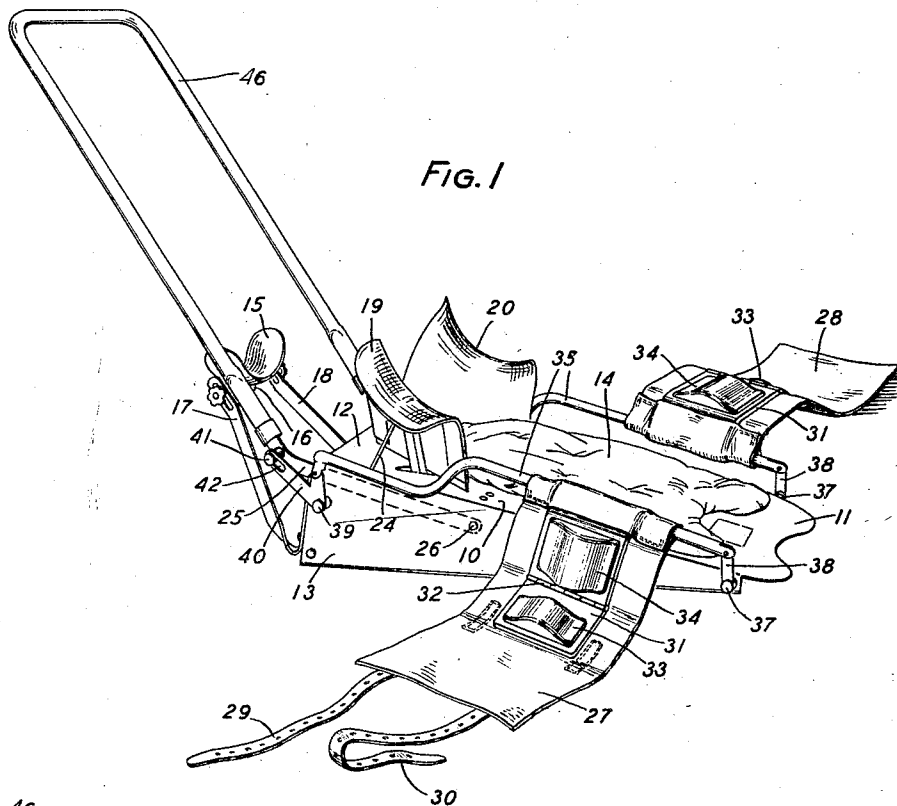
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1,848,212

APPARATUS FOR PRODUCING ARTIFICIAL BREATHING

Filed June 19, 1930

2 Sheets-Sheet 1



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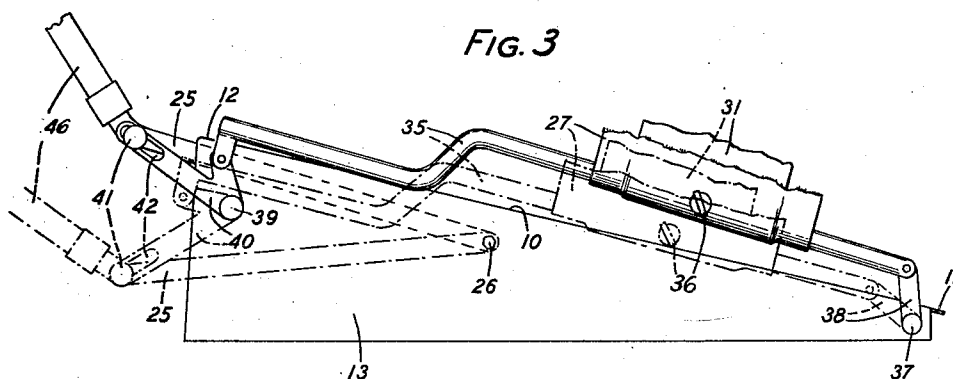


FIG. 4

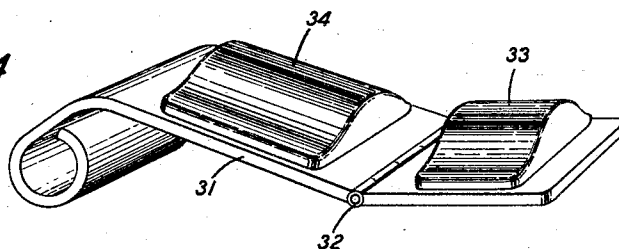


FIG. 5

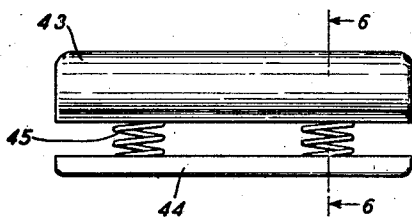
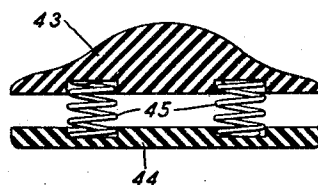


FIG. 6



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APPARATUS FOR PRODUCING ARTIFICIAL BREATHING

Application filed June 19, 1930. Serial No. 462,158.

This invention relates to improvements in apparatus for producing artificial respiration, and more particularly to resuscitators of the type shown in Patent No. 1,609,659.

5 The object of the present invention is to overcome objections heretofore present in apparatus for mechanical resuscitation, by providing an improved device which will produce the Schaeffer method, which at the
10 present time no device of this nature actually accomplishes.

Heretofore, in apparatus for producing artificial respiration, it has been common practice to provide in such devices a means for
15 exhausting the lungs which exerts a downward pressure approximately in the small of the back below the ribs. In the operation of these devices the pressure is alternately increased and decreased by means of an operating handle which imparts an up and down
20 motion to the pressure exerting means.

It can be readily observed that this up and down motion imparted to the diaphragm of the patient is not the Schaeffer prone pressure
25 method of artificial respiration and is in effect nothing more than a bellows action.

Applicant has therefore devised an apparatus for artificial respiration which actually operates in accordance with the Schaeffer
30 method of artificial respiration, by providing not only a downward pressure to the diaphragm of the patient but also a kneading or forward motion, which when practicing the Schaeffer method, is done with the hands.
35 Applicant has provided his device with a means for imparting this kneading motion which is very essential to the successful practicing of the Schaeffer method.

40 In order that my invention may be more readily understood, I have illustrated, by way of example, an embodiment thereof in the accompanying drawings, of which:

Fig. 1 is a perspective view of the apparatus
45 in its normal position with the belt open;

Fig. 2 is a perspective view of the apparatus with a patient thereon, the device being in its operated position;

50 Fig. 3 is an enlarged side elevation with the belt removed which illustrates the nor-

mal and operating positions of the lever arms;

Fig. 4 is an enlarged detailed view of the pads which are secured to the belt;

Fig. 5 is a side elevation of a modified form
55 of pressure pad; and

Fig. 6 is a view in cross section of Fig. 5.

Referring now to Figs. 1 and 2, the improved device comprises an inclined portion
10 for supporting the chest of the patient and
60 is constructed out of sheet metal or some other suitable material. The lower end 11 of the inclined portion 10 is arranged to rest on the ground while the higher or opposite end
65 12 is raised a sufficient distance from the ground to give it the proper slope and is supported by means of the side members 13. Located on the inclined portion 10 is a suitable
70 pad 14 of resilient material upon which the patient's chest is supported. In order that the patient's head 22 may be suitably supported there is provided a rest 15 which is
75 curved to accommodate the patient's forehead 23. This curved plate 15 is loosely mounted on the yoke 16 which in turn is secured to the bracket arms 17 and 18 which
80 are rigidly secured to the ends of the side members 13. Due to this construction the patient's head is supported clear of the upper end 12.

Located at the upper end 12 of the inclined portion 10 and hinged thereto are a pair of fin shaped supports 19 and 20. These supports are so shaped as to fit conformably
85 against the front of the patient's shoulders 21 and extend beyond his armpits and fit closely against his sides. These supports are arranged to be operated inwardly and outwardly away from and toward each other for the purpose of assisting respiration. In
90 order that these fin shaped supports 19 and 20 may be operated in this manner there are secured to the upper side thereof the connecting rods 24 which are in turn secured to the reciprocating levers 25. The levers 25 are
95 pivoted at 26 to the side members 13 and project some distance outwardly beyond the upper end 12 of the inclined portion 10. Secured to the extending portions of the levers 25 is a U-shaped handle or frame 46 which
100

extends upwardly at a convenient angle to be grasped by the person operating the device who moves it in an upward and downward direction. The frame or handle 46 is held
5 in its upward or normal position by means of springs (not shown).

In order to provide means for exhausting the lungs of the patient there is provided a belt or strap 27—28 which is secured in close
10 contact with the body of the patient by means of the devices 29 and 30, and comprises two portions which may be adjustably secured by means of the aforementioned devices 29 and 30. Secured on the inside surface of the belt portions 27 and 28 are the
15 hinged plates 31 (see Fig. 4). Mounted on these hinged plates, one on either side of the hinged joint 32 are the members 33 and 34 which when the belt is secured in position
20 around the patient, are arranged to fit into the body and exert pressure in the same manner as the human hands when practicing the Schaeffer method of artificial respiration. The lower end of the hinged plates 31 are so
25 formed that they fit around the lever arms 35 and clamp the belt portions 27—28 thereon. The belt 27—28 may be adjusted and secured in position on the lever arms 35 by means of thumb nuts 36 which are threaded
30 in the curved portion of the plates 31 and engage the lever arms 35.

The lower ends of the lever arms 35 are pivotally secured to the side members 13 by means of the studs 37 and the links 38 and at
35 their upper ends by means of the studs 39 and the bell crank levers 40, the bell crank levers 40 in turn being secured to the projecting arms 25 by means of the studs 41 which are slidably mounted in the slots 42. It is thus
40 readily apparent that any movement transmitted to the handle 46 will be transmitted to the lever arms 35 and in turn to the belt 27—28.

Due to the above arrangement and construction it can be readily observed that not
45 only is a downward movement imparted to the belt 27—28 but also a forward movement as well, as shown in Fig. 3. This downward and forward movement is due to the shape of
50 the arms 35, the links 38 and the bell crank levers 40, and also due to the fact that the belt 27—28 with its raised portions or pads 33 and 34 are rigidly secured to the lever arms 35 so that there is no slippage and no loss of mo-
55 tion.

When the handle or frame 46 is grasped and moved downward to the position as shown in Fig. 2, the lever arms 25 will drawn the fin shaped members 19 and 20 downwardly and
60 outwardly, at the same time, thereby causing the patient's shoulders 21 to drop of their own weight. At the same time as the levers 25 are operated, the lever arms 35 are also operated and are forced downwardly and for-
65 wardly, thereby causing the belt 27—28 to

exert a downward and forward pressure on the patient's body at the same time. Due to this motion and the raised portions or pads 33 and 34 on the belt 27—28, a so-called kneading effect will be produced, which is
70 an essential part of the Schaeffer method of resuscitation.

The handle 46 is returned to its upper or normal position by means of springs (not shown), located on the under side of the in-
75 clined portion 10. The upward motion of the handle 46 releases the pressure of the belt 27—28 and slides it back to its normal position.

In Figs. 5 and 6 a modified form of pad is
80 illustrated which comprises two members, namely, an upper member 43 and a lower member 44, these two members are held in spaced relation by means of the springs 45, the lower member 44 is arranged to be se-
85 cured to the metal plates 31, while the upper member 43 is resiliently supported due to the action of the springs 45. This type of resilient pad when brought into contact with the body of the patient will readily lend it-
90 self to any irregularities of the body and due to its resiliency will obviate any chance of abrasion.

The apparatus as heretofore described en-
95 ables an unskilled person to practice and continue for long periods of time without fatigue the so-called Schaeffer method of respiration.

While I have shown and described the preferred embodiment of my invention, I do not
100 limit myself to the precise details shown, inasmuch as various modifications and changes may be made therein without departing from the spirit of the invention.

What is claimed is:

1. An apparatus for producing artificial
105 respiration comprising means for supporting the body of a patient, a belt adapted to be secured in close contact with the body of said patient, arms secured to said belt for
110 operating the same, means connected to said arms for controlling their action, said arms being pivotally supported at each end by link members, said link members causing the arms
115 to travel downwardly and forwardly when actuated by said controlling means.

2. An apparatus for producing artificial
120 respiration comprising means for supporting the body of a patient, a belt having a plurality of raised portions thereon adapted to be secured in close contact with the body of the patient, arms secured to said belt for oper-
125 ating the same, means connected to said arms for controlling their action, said arms being pivotally supported at each end by means of link members, said link members causing the arms to travel downwardly and
130 forwardly when actuated by said controlling means.

3. An apparatus for producing artificial
135 respiration comprising means for supporting

the body of a patient, a belt having a plurality of raised portions thereon adapted to be secured in close contact with the body of the patient, arms secured to said belt for operating same, said belt being longitudinally adjustable with respect to said arms, and means connected to said arms for controlling their action, said arms being pivotally supported at each end by means of link members, said link members causing the arms to travel downwardly and forwardly when actuated by said controlling means.

4. An apparatus for producing artificial respiration comprising means for supporting the body of a patient, a belt having a plurality of raised portions thereon, said raised portions being so shaped as to fit snugly to the body of said patient below the ribs on either side of the spine, arms secured to said belt for supporting same, means connected to said arms for controlling their action, said arms being pivotally supported at each end by link members for causing the arms to travel downwardly and forwardly when actuated by said controlling means.

5. An apparatus for producing artificial respiration comprising means for supporting the body of a patient, a belt having a plurality of raised portions hingedly mounted thereon adapted to be secured in close contact with the body of the patient, arms secured to said belt for operating the same, and means connected to said arms for controlling their action, said arms being pivotally supported at each end by means of link members, said link members causing the arms to travel downwardly and forwardly when actuated by said controlling means.

6. An apparatus for producing artificial respiration comprising means for supporting the body of a patient, a belt having a plurality of raised portions hingedly supported thereon, said belt adapted to be secured in close contact with the body of the patient and exert pressure thereon, arms secured to said belt for operating same, means connected to said arms for controlling their action, said arms being pivotally supported at each end by link members for causing the arms to travel downwardly and forwardly when actuated by said controlling means.

7. An apparatus for producing artificial respiration in accordance with claim 4, characterized in this that the raised portions secured to the belt portion are resiliently mounted thereon.

In witness whereof, I hereunto subscribe my name this 17th day of June, 1930.

JOHN S. WATERMAN.